

Table S2: Parameter values.

Parameter	Description	Value	Reference
$\gamma$	recovery rate	0.25	[14]
$\rho$	fraction of symptomatic	2/3	[14]
$m$	reduction of infectiousness for asymptomatics	0.5	[14]
$c_{11}, c_{12}, c_{21}, c_{22}$	contact rates	1, 0.2, 0.2, 0.4	calculated <sup>a</sup>
$VE_S, VE_I, VE_P$	vaccine efficacies for susceptibility, infectiousness and pathogenicity	0.4, 0.45, 0.75	[15]
$N$	total population	200 000	assumption
	initially infected fraction of the population	1	assumption
	percentage of children under 18 (US)	24.16	[16]
	percentage of children under 19 (less developed country)	55	[17]
$\delta_1$	percentage of children at high risk	8.9	[18]
$\delta_2$	percentage of adults at high risk	21.2	[18]
	mortality in low risk children	0.000031	[19] <sup>b</sup>
	mortality in high risk children	0.000416	[19]
	mortality in low risk adults	0.000101	[19]
	mortality in high risk adults	0.000821	[19]
	hospitalization rate in low risk children	0.0021	[19] <sup>c</sup>
	hospitalization rate in high risk children	0.0279	[19]
	hospitalization rate in low risk adults	0.0024	[19]
	hospitalization rate in high risk adults	0.0129	[19]
	adjusted multiplier for mortality and hospitalizations for children in LDC	8	assumption
	adjusted multiplier for mortality and hospitalizations for adults in LDC	3	assumption

<sup>a</sup>The contact rates were calculated to obtain the final illness attack rates shown in table S3

<sup>b</sup>The mortality rates were computed by weighting the estimates of deaths given in [19] by the percentages of people in each subgroup given in [18].

<sup>c</sup>The hospitalization rates were computed by weighting the estimates of hospitalizations given in [19] by the percentages of people in each subgroup given in [18].